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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,850	04/13/2001	Ulrich Zimmermann	113737.6	2752

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02/06/2004

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EXAMINER

NAFF, DAVID M

ART UNIT

PAPER NUMBER

1651

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/762,850

Applicant(s)

ZIMMERMANN ET AL.

Examiner

David M. Naff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-42, 52 and 56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-42, 52 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/3/03 has been entered.

The amendment filed 11/3/03 amended claims 29 and 52.

Claims examined on the merits are 29-42, 52 and 56, which are all claims in the application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claims 29, 31-42, 52 and 56 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for using the complexing agent of claim 30, does not reasonably provide enablement for other complexing agents. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification fails to disclose a complexing agent other than EDTA as required by claim 30. It would be uncertain from the specification as to another complexing agent that will provide the desired purified alginate.

Claim Rejections - 35 USC § 112

Claims 29-42, 52 and 56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are confusing and unclear by claim 1 (line 1) reciting "highly-purified". Being "highly" purified is relative and subjective, and it would be uncertain as to when an alginate is highly and not highly purified within the scope of the claims.

The term "complex forming agent" in line 3 of claim 1 is uncertain as to meaning and scope. Whether an agent is complex forming would depend on how the agent reacts to form a complex. Since the claim fails to describe the reaction that forms the complex and the resultant complex formed, it would be uncertain as to an agent that will form complex within the scope of the claims.

The claims are confusing and unclear by "raw algae material" in line 3 of claim 29 being uncertain as to meaning and scope. It would be uncertain as to the line of demarcation between algae that is raw and not raw, and the specification does not make a precise distinction between raw and non-raw algae material. Being "raw" is relative and subjective.

Dependent claims 30-32 are unclear by claims 30 and 32 not having clear antecedent basis for "the extraction" and claim 31 not having clear antecedent basis for "the extracting". Claim 29 does not now require extracting.

In line 2 of claim 30, "a" should be changed to --- the --- to be clear that the complexing agent is that of claim 29.

In claim 31, the meaning of "soda solution" is uncertain. It does not appear this term has an art recognized definition.

5 In line 2 of claim 34, "on the basis of" is uncertain as to meaning and scope. This should be replaced with --- formed from ---. Bridging lines 1 and 2, "recycling materials from regenerated raw materials" is uncertain as to meaning and scope. It would be uncertain as to materials within and not within the scope of this
10 limitation. It is suggested this limitation be deleted. With this change, the comma after "cellulose" should be deleted, and the comma after "earth" changed to --- or ---.

Bridging lines 1 and 2 of claim 35, "deep filters" is uncertain as to meaning and scope. It is uncertain as to filter structure that
15 is deep and not deep.

In claim 40, the meaning and scope of "fresh algae material" is uncertain. Being "fresh" is relative and subjective, and the specification fails to define when algae material is fresh and not fresh.

20 In claim 41, the difference between "organ" or "tissue" parts, and how these parts differ from "algae parts". It is further unclear to the meaning and scope of "specific stages of the development cycle of algae". The stages that are specific stages is uncertain. It is suggested that claim 41 be canceled.

Response to Arguments

In response to using the term "raw", applicants urge that one will recognize the difference between the source material and the end product since the specification describes source materials and the end product is highly pure, and the specification describes source materials. However, the term "raw" in the claims does not have to be limited to examples in the specification. When algae material is raw and not raw in the claims would be subject to ones individual definition of raw, and be relative and subjective. One could define "raw algae material" as being any algae material or alginate capable of further processing to obtain a final purified product.

Claim Rejections - 35 USC § 103

Claims 29-42, 52 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klock et al (AP) in view of Nevins et al (4,954,447) and Yeh (5,489,674), and if necessary in view of Zimmermann et al (DE 42 04 012 A1).

The claims are drawn to obtaining a highly pure alginate composition by a process having the steps of (a) treating raw algae material with a complex forming agent creating a liquid comprising dissolved alginate and solid matter, (b) filtering the liquid to produce a filtrate containing dissolved alginate, (c) precipitating the alginate out of solution, (d) collecting and dewatering the precipitated alginate, and (e) repeating steps (a) to (d) at least once.

Klock et al disclose (page 638 (abstract), paragraph bridging pages 639 and 640, and page 640, left col, beginning with the first full paragraph) purifying commercial alginates by dissolving commercial alginate in water, adding barium chloride to form beads, extracting the beads, dissolving the beads in an alkaline EDTA solution, filtering the solution, precipitating alginate and drying the precipitated alginate.

Nevins et al disclose (col 6, lines 32-35) that repeating purification steps when purifying an enzyme provides greater purity.

Yeh discloses (col 3, lines 58-62) that repeating process steps in purification of a polygalactomannan gum produces greater purity.

In view of the specification (page 2, lines 16-20), Zimmermann et al disclose subjecting a raw alginate solution to treatment with a complex forming agent.

The process of Klock et al contains steps as required by the present claims except that the claims require repeating the steps of the process at least once, and Klock et al use commercial alginate as the initial material treated whereas the claims require raw algae material as the initial material treated.

It would have been obvious to repeat the purification steps of Klock et al at least once to obtain greater purification as suggested by Nevins et al and Yeh disclosing repeating purification steps to obtain greater purity. In view of the present specification disclosing commercial raw alginates as the material that can be purified by the steps of the process, the commercial alginate of Klock

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et al would be a raw algae material as required by the claims. The claims do not exclude other steps of treating the raw alginate such as with barium and extracting prior to treating with EDTA as disclosed by Klock et al. The extracted barium alginate of Klock et al can be considered a raw algae material since it is not the final product and requires further steps of treating with EDTA, precipitating and drying to obtain the final purified alginate. If needed, the disclosure by Zimmermann et al of using raw alginate would further support that the commercial alginate of Klock et al is a raw algae material within the scope of the claims. The conditions of dependent claims are disclosed by Klock et al and Zimmermann et al, or would have been obvious from the disclosed conditions. Klock et al disclose EDTA as in claim 30. Soda as in claim 31 would have been obvious to provide the alkaline EDTA solution of Klock et al. Klock et al disclose using charcoal and providing charcoal in the extraction solution as in claim 32 would have been obvious. Klock et al disclose filtering, and sedimentation with a porous binding agent as in claims 33 and 34 would have been obvious to facilitate filtering since using a binding agent such as diatomaceous earth in filtering is well known. Using a preferred filter as in claim 35 would have been obvious. Klock et al use ethanol for precipitation as in claims 36 and 37. Methods of collecting a precipitate as in claim 38 are well known and would have been obvious. Dewatering as in claim 39 would have been obvious to facilitate drying. Selecting a preferred beginning algae material as in claims 40-42 and 56 would have been a matter of obvious choice

within the skill of the art. Carrying out the process of Klock et al as set forth above would have inherently resulted in a composition as required by claim 52.

Response to Arguments

5 Applicants urge that in Klock et al contaminants are dissolved in acid while the alginate remains solid, and the EDTA is used only in a final step to recover the alginate, whereas in the claimed process the alginate is dissolved while contaminants remain in solid material and are removed by filtration. However, the present claims do not exclude
10 treating the raw commercial alginate with other steps prior to treatment with EDTA, and do not exclude steps of forming barium alginate beads from commercial alginate and extracting the beads prior to treatment with EDTA to dissolve the beads. The barium alginate can still be considered a raw alginate since it is not the final product.
15 Dissolving the barium alginate with EDTA, filtering the resultant solution and precipitating the dissolved alginate as disclosed by Klock et al would have provided further purification, and not just function to recover sodium alginate.

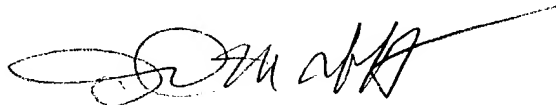
The present claims do not require extracting alginate directly
20 from naturally occurring algae material. The raw algae material of the claims can be any algae material capable of further purification. Since the extracted barium alginate in Klock et al is not the final purified product, it can still be considered to be raw as compared to the final product. The commercial alginate that is disclosed to be
25 raw is not natural algae, but is an alginate salt produced from

processing natural algae. If a commercial processed alginate salt can be considered raw, then a barium alginate that has been extracted can be considered raw. There is inadequate evidence to establish that an alginate resulting from the claimed process is more pure than alginate produced by the Klock et al process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David M. Naff

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Primary Examiner

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DMN

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